

using amorphous silicon by utilizing plasma CVD, the invention can as well be applied to the manufacture of thin-film transistors using semiconductor films by utilizing the photo CVD or molecular beam and/or the ion beam deposition method, thin-film transistors using polysilicon, and thin-film transistors using semiconductor films of other materials than silicon; consequently, the present invention is of great industrial significance.

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CLAIMS:

A 1. A process for producing a thin-film transistor comprising a first step for forming a gate electrode on an insulating substrate, a second step for continuously depositing on said gate electrode and substrate a gate insulating film, a high resistivity semiconductor film and a conducting film containing at least a low-resistivity semiconductor film without exposing them to ^{an} ~~the~~ oxidizing atmosphere, a third step in which said high resistivity semiconductor film and said conducting film are selectively etched so that they are partly left as an island region on said gate electrode, a fourth step for selectively forming a source electrode and a drain electrode both contacting a part of the surface of said island region and spaced apart from each other, a fifth step for selectively

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removing said conducting film exposed on said island region with said source and drain electrodes serving as at least a part of the mask, a sixth step for depositing a surface passivation film, and a seventh step for selectively removing said surface passivation film and exposing a part of each of said source electrode, drain electrode and gate electrode.

2. A process for producing a thin-film transistor according to Claim 1, wherein in said second step said conducting film is composed of at least two layers consisting of a low-resistivity semiconductor film and thereon a refractory metal film or transparent conducting film, and both of said films are continuously deposited without being exposed to the oxidizing atmosphere.

3. A process for producing a thin-film transistor according to Claim 1, wherein in said sixth step a light-shielding film is formed at a part of said surface passivation film.

4. A process for producing a thin-film transistor according to Claim 2, wherein in said sixth step a light-shielding film is formed at a part of said surface passivation film.

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